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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,330	09/16/2003	Takashi Ohira	Q77492	9180
23373 7590 09/20/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER TSOY, ELENA	
			ART UNIT 1762	PAPER NUMBER
			MAIL DATE 09/20/2007	DELIVERY MODE PAPER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/662,330
Filing Date: September 16, 2003
Appellant(s): OHIRA, TAKASHI

**MAILED
SEP 20 2007
GROUP 1700**

L. Raul Tamayo
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 13, 2007 appealing from the Office
action mailed January 16, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,165,564	CRAST ET AL	12-2000
20020016226	JIN ET AL	2-2002
6,319,983	LOKAI ET AL	11-2001

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5,300,325	NEALON ET AL	4-1994
5,089,376	SETTHACHAYANON	2-1992
6,255,382	HAMADA ET AL	7-2001
4,145,501	KAIYA ET AL	3-1979

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim 1, 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crast et al (US 6,165,564) in view of Jin et al (US 20020016226), further in view of Lokai et al (US 6319983), and further in view of Nealon et al (US 5,300,325).

Crast et al disclose a method for preparing a golf ball having polyurethane top coating formed from UV-curable coating (See column 8, lines 56-57) comprising applying the UV-curable coating (claimed UV-curable paint) to a **primer**/basecoat on an *ionomeric* cover 16 of a golf ball 10 (See column 4, lines 11-17; column 7, lines 18-19), and irradiating the substrate with ultraviolet radiation in an inert gas environment for a sufficient amount of time with optional aging to fully cure the golf ball (See Abstract; See column 6, line 31 to column 7, line 15). The UV-curable coating comprises polyether acrylates and urethane acrylate oligomers (See column 4, lines 28-32).

Crast et al fail to teach that: (i) a primer composition comprises an aqueous resin having UV-curable functional groups in a molecule and a crosslinker; (ii) Crast et al the aqueous primer layer and the UV-curable top coating are cured at the same time (i.e. *co-cured*) with UV radiation.

As to (i), Jin et al teach that a solvent-free (See P36) UV-curable coating comprising urethane acrylate oligomers (See P24) having UV-curable acrylate double bond (See P23), UV curable reactive acrylate diluent (See P30-31) and polyfunctional aziridines (claimed crosslinker (See P14) has enhanced adhesion to an ionomer substrate (See P41) and particularly suitable for golf ball application, wherein the golf ball comprises an ionomer resin layer (See P39). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used UV-curable coating of Jin et al as a primer in Crast et al with the expectation of providing the desired enhanced adhesion to an ionomer cover, as taught by Jin et al.

Jin et al fail to teach that UV-curable coating composition can be formulated as water based composition without the use of the reactive diluent. Lokai et al teach that one possibility to reduce the amount of reactive diluents added, or to do without them entirely, is to use aqueous, radiation-curable binder dispersions (See column 1, lines 25-27). In other words, Lokai et al teach that a coating composition having reactive diluents may be formulated as water based composition having the same properties.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a UV-curable coating composition of Jin et al formulated as a water based composition as a primer in Crast et al with the expectation of providing the same desired enhanced adhesion to an ionomer substrate as with reactive diluents since Lokai et al teach that a coating composition having reactive diluents may be formulated as a water based composition having the same properties.

As to (ii), Nealon et al teach that a polyurethane top coat tightly adheres to an ionomeric cover of golf ball if a polyurethane top coat and an aqueous primer layer

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comprising acrylate and/or polyurethane resin and polyfunctional aziridine crosslinker (See Abstract) are *co-cured* (See Abstract; column 4, lines 52-54).

In other words, Crast cures top-coat **and** a primer by UV radiation. Nealon teaches that an aqueous primer comprising acrylate-polyurethane resin (i.e. a polyurethane resin having UV curable acrylate groups as a primer of Jin and Lokai) would improve adhesion of polyurethane top layer to ionomer golf ball cover if the polyurethane top layer were applied to **non-crosslinked**, *partially* cured primer (by heat), and then co-cured with the top coat layer. Therefore, it would have been obvious to one of ordinary skill in the art at to have applied a top coat layer in Crast to **non-crosslinked**, *partially* cured primer (by heat) and then irradiated the layers with UV radiation.

It is the Examiner's position that irradiating with UV radiation a top coat layer and **non-crosslinked**, *partially* cured primer of Jin et al in combination with Lokai et al comprising an acrylate-polyurethane resin (a polyurethane having UV-curable acrylate double bonds in a molecule) and a polyfunctional aziridine crosslinker would cure and crosslink both layers at the same time since Jin et al in combination with Lokai et al teach that an aqueous composition comprising urethane acrylate oligomers having UV-curable acrylate double bond and polyfunctional aziridine crosslinker are **UV curable** (See above).

As to limitation "wherein the primer composition layer is *not irradiated* with UV radiation *prior to having the UV-curable paint applied thereon*, Nealon et al do not teach that the a primer is irradiated with UV radiation prior to applying a top coat.

Nealon et al, however, teach that the applied primer is dried, then cured by heat for 10 minutes at 150 °F (66 °C) in a curing oven; then the primer and top coat are **co-**

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cured and crosslinked at 130 °F (54 °C) for six hours (See column 4, lines 45-54). Note that the Appellants' specification describes that the primer layer formed on the cover surface is dried prior to applying a UV-curable clear paint, preferably by heat usually at a temperature up to 70 °C for usually for at least 15 minutes, preferably at least 25 minutes and usually up to 180 minutes prior to applying a UV-curable paint thereto (See specification, page 6, lines 14-21). The Appellants' specification further describes in Examples 1-9 that each of the primer compositions was applied to the cover surface to a thickness of 8 microns and heat dried under 55 °C for 30 minutes (See Table 2).

In other words, both Nealon and Appellants teach the same step of drying and pre-curing by heat prior to applying a top coat.

As to claim 3, Although Jin et al do not expressly teach that a UV-curable urethane acrylate oligomers have UV-curable (meth)acrylate groups, it would be obvious to one of ordinary skill in the art at to use methacrylic monomers together with acrylic monomers for making urethane acrylate oligomers because methacrylic monomers are homologues of acrylic monomers and, therefore, are expected to have similar properties.

Note that Jin et al teaches the use of acrylic and methacrylic monomers as a reactive diluent (See P31).

As to claim 4, it is the Examiner's position that introducing water-soluble groups such as carboxyl groups to a resin in a coating composition is a well known and conventionally used technique for converting a non-aqueous composition to a water based composition.

As to claim 5, Jin et al teach a solvent-free (See P36) UV-curable coating comprising urethane acrylate oligomers (See P24) having UV-curable acrylate double

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bond (See P23) and polyfunctional aziridine-based crosslinker (claimed ethyleneimine-based crosslinker) (See P14).

As to claim 6, Crast et al teach that UV-curable coating has thickness of 0.5 mils (12.7 microns). Jin et al teach that UV-curable coating composition (claimed primer) may have thickness in the range of 0.1-3.0 mils (2.54-76 microns). Obviously, the optimum values of the relevant thickness parameters of the primer (including those of claimed invention) in the cited prior art may be determined through routine experimentation in the absence of showing of criticality.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Crast et al in view of Jin et al, further in view of Lokai et al, and further in view of Nealon et al, as was discussed above, and further in view of Setthachayanon (US 5089376).

The cited prior art is applied here for the same reasons as above. The cited prior art fails to teach that the aqueous resin is prepared by introducing carboxyl, amino or sulfonate groups.

Setthachayanon teaches that introducing carboxyl moiety into urethane (meth)acrylate polymer in a photocurable coating composition changes the nature of the urethane (meth)acrylate, making it soluble in aqueous alkali, but retaining the sensitivity of the compound to UV light (See column 3, lines 20-38).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formulated an aqueous photocurable coating composition of the cited prior art by introducing carboxyl moiety into urethane acrylate oligomer since Setthachayanon teaches that introducing carboxyl moiety into urethane (meth)acrylate

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polymer in a photocurable coating composition changes the nature of the urethane (meth)acrylate, making it soluble in aqueous alkali, but retaining the sensitivity of the compound to UV light.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hamada et al (US 6255382) is cited to show that ethyleneimine is aziridine (See column 1, lines 54-56).

Kaiya et al (US 4145501) teach that in order to prepare a film forming material for a water-soluble coating composition, it is necessary to introduce hydrophilic groups such as carboxyl, hydroxy, ether, amino and sulfonic acid groups into the molecular structure of the material (See column 1, lines 26-30).

(10) Response to Argument

A. Response to rejection of Claims 1 and 3.6 under 35 U.S.C. § 103

1. The error in the rejection

The error in the rejection is that the combination of Crast in view of Jin, further in view of Lokai, and further in view of Nealon, does not establish a prima facie case of obviousness.

2. Why Claims 1 and 3-6 are patentable over Crast in view of Jin, further in view of Lokai, and further in view of Nealon

a. None of the applied references teaches or suggests to not irradiate the Primer composition layer with UV radiation prior to having the UV-curable paint applied thereon

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Applicants argue that during the prosecution the examiner ignored the recitation that "the primer composition layer is not irradiated with UV radiation prior to having the UV-curable paint applied thereon." The examiner states in the Advisory Action mailed April 20, 2007, that "**none** of the applied references teaches or suggests to **irradiate** the primer composition layer with UV radiation **prior to** having the UV, curable paint applied thereon including Nealon" (emphasis in the original). Claim 1, however, does not recite "wherein the primer composition layer is irradiated with UV radiation prior to having the UV-curable paint applied thereon." Instead, Claim 1 recites, "wherein the primer composition layer is **not irradiated** with UV radiation prior to having the UV-curable paint applied thereon." It is improper for the examiner to conclude that silence with respect to the opposite of a claim recitation amounts to a teaching of the claim recitation. In short, the examiner has not identified a teaching or suggestion in the applied art to not irradiate the primer composition layer with UV radiation prior to having the UV-curable paint applied thereon.

The Examiner respectfully disagrees with this argument. First of all, Nealon is not silent with respect to the opposite of a claim recitation since Nealon teaches **heat-treating** an aqueous primer for 10 minutes at 150 °F (66 °C) before co-curing it with a top coat, as in Appellants invention (See above). Secondly, in contrast to Applicants statement, it is proper for the examiner to conclude that *silence* about UV irradiation of the primer in Nealon should be interpreted as claimed non-irradiating the primer with UV. There is no MPEP guidance or case law against such an interpretation.

b. Nealon teaches away from not irradiating the primer composition layer with UV radiation prior to having the UV-curable paint applied thereon

Nealon teaches away from not irradiating the primer composition layer with UV radiation prior to having the UV-curable paint applied thereon. At column 4, lines 45-54, Nealon teaches to cure the primer for 10 minutes in a curing oven before applying the top coat. In the April 2007 Advisory Action, the examiner disagrees, stating that "claim 1 does not exclude a step of partial curing of the primer by heat (as in Nealon) before co-curing the primer and the top coat by UV-radiation" (emphasis in the original).

Appellants' position, however, does not concern whether Claim 1 excludes or includes curing the primer composition layer by heat before having the UV-curable paint applied on the primer composition layer. Appellant's point is that Nealon's teaching at column 4, lines 45-54, to cure the primer for 10 minutes in a curing oven before applying the top coat amounts to a teaching away from not irradiating the primer composition layer with UV radiation prior to having the UV-curable paint applied thereon. The examiner herself has stated at page 3, lines 5- 16, of the April 2007 Advisory Action that heat is functionally equivalent to UV-radiation in the present context. Therefore, in addition to the fact that none of the applied references teaches or suggests to not irradiate the primer composition layer with UV radiation prior to having the UV-curable paint applied thereon, Nealon's teaching at column 4, lines 45-54, by the examiner's own reasoning, would actually lead one of ordinary skill in the art to experiment with irradiating the primer composition layer with UV radiation prior to having the UV-curable paint applied thereon, in direct contrast to the recitation in Claim 1 of not irradiating the primer

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composition layer with UV radiation prior to having the UV-curable paint applied thereon.

The Examiner respectfully disagrees with this argument. As was discussed above, Appellants own specification describes heat-treating an aqueous primer (which is substantially identical to that of Jin in view of Lokai) at a temperature up to **70 °C** for usually for at least 15 minutes, preferably at least 25 minutes and **usually up to 180 minutes prior to** applying a UV-curable paint thereto (See specification, page 6, lines 14-21; and Table 2). Thus, in contrast to Applicants argument, Nealon's teaching at column 4, lines 45-54, to cure the primer for 10 minutes in a curing oven before applying the top coat amounts **does not teach away** from claimed invention, and/or from claim recitation of not irradiating the primer composition layer with UV radiation prior to having the UV-curable paint applied thereon.

c. Combining Crast and Jin in the manner proposed by the examiner would not lead to the primer composition layer of Claim 1

Although Crast broadly teaches a primer/basecoat onto which a UV-curable coating may be applied, the examiner acknowledges that Crast does not specifically teach a golf ball having the claimed primer composition, comprising an aqueous resin having UV-curable functional groups in a molecule and a crosslinker, between a cover surface of the golf ball and the UV-curable coating. The examiner attempts to cure the deficiency of Crast by reference to Jin. Appellant respectfully disagrees with the examiner's proposed combination of art, for at least the following reasons. First, combining the teachings of

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Crast and Jin is based on improper hindsight reasoning. In particular, one of ordinary skill in the art, armed with the teachings of Crast, would have had no motivation to employ the UV curable coating of Jin as a primer between a cover surface of a golf ball and the UV-curable coating of Crast. In this regard, the examiner asserts that the motivation to combine the teachings of Crast and Jin would have been to provide desired enhanced adhesion to an ionomer coating. However, the teachings of Crast provide no indication that enhanced adhesion is needed between the UV, curable coating of Crast and an ionomer cover. In fact, the very opposite is true. At column 4, lines 11-12, Crast teaches that its UV-curable coating may be applied to ionomeric covers. Further, Jin does not teach the use of its UV-curable coating as a primer. At paragraph [0022], Jin identifies its UV-curable coating as a topcoat. Likewise, Jin's claims recite that its coating is an outer coating or a top coat. See Claims 1, 3, and 9. Thus, in addition to there being no motivation to combine the teachings of Crast with the teachings of Jin for the reasons mentioned above, the teachings of Crast and Jin do not provide a reasonable expectation of success that the UV-curable coating of Jin could serve as a primer delivering adequate adhesion between the UV-curable coating of Crast and the cover surface of a golf ball.

Second, even if the teachings of Crast and Jin would have been combined by one of ordinary skill in the art in the manner proposed by the examiner, the result would not have led to the presently claimed method. The method of Claim 1 comprises coating a layer of a primer composition comprising an aqueous resin having UV-curable functional groups in a molecule and a crosslinker on the cover surface of a golf ball. In contrast, at paragraphs [0013] and [0036], Jin clearly states that the advantageous effects and benefits of its invention are fled to the coating being "a nearly 100% solid system".

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The Examiner respectfully disagrees with this argument. Patents are relevant as prior art for all they contain including prior art's broad disclosure. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. See MPEP 2123. Thus, Crast teaching that an *optional* primer may be applied to ionomeric covers prior to UV-curable coating (See column 4, lines 14-17; column 7, lines 18-19) is not teaching away from the use of a primer.

As to improper "hindsight" and lack of "express" motivation in Crast to provide enhanced adhesion, in response to Applicants arguments that the combination of two or more references is "hindsight" because "express" motivation to combine the references is lacking, there is no requirement that an "express, written motivation to combine must appear in prior art references before a finding of obviousness." See Ruiz v. A.B. Chance Co., 357 F.3d 1270, 1276, 69 USPQ2d 1686, 1690 (Fed. Cir. 2004). For example, motivation to combine prior art references may exist in the nature of the problem to be solved (Ruiz at 1276, 69 USPQ2d at 1690) or the knowledge of one of ordinary skill in the art (National Steel Car v. Canadian Pacific Railway Ltd., 357 F.3d 1319, 1338, 69 USPQ2d 1641, 1656 (Fed. Cir. 2004)).

Jin et al provide a clear motivation to use their primer to provide the desired enhanced adhesion of UV curable top coat to an ionomer cover. One of ordinary skill in the art would have reasonable expectation of success in using a primer of Jin et al in view of Lokai et al because Jin et al teach that a UV curable coating of their invention can be used in essentially *any* type of coating or adhesive application known in the art, particularly suitable for golf ball application, wherein the golf ball comprises an ionomer resin layer (See P39).

As to paragraphs [0013] and [0036] of Jin clearly stating the advantageous effects and benefits of its invention are fled to the coating being "a nearly 100% solid system".

First of all, in contrast to Applicants argument, Jin also teach in P36 that UV curable coating could be either "a nearly 100% solid system" or diluted with solvent for improved application to various substrates. Secondly, it is well settled that one cannot show nonobviousness by attacking references *individually* where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The Examiner states that a primer of a **combination** of Jin and Lokai would be obvious to be used as a primer in Crast.

d. Jin teaches away from the proposed combination of Jin and

Lokai

Jin clearly "teaches away" from the proposed combination of Jin and Lokai because: first, at paragraphs [0013] and [0036], Jin discourages such a reformulation by making clear that the advantageous effects and benefits of its invention are tied to the coating being "a nearly 100% solid system" with any remainder being solvent; second, at paragraph [0007], Jin criticizes water-borne coatings as suffering from the drawback of a long curing time. In response to Appellant's position that Jin criticizes, discredits, or otherwise discourages modifying its solvent-free coating by reformulating it as a water-based composition, the examiner states in the April 2007 Advisory Action that "it would be obvious to a person of ordinary skill in the art to use a water-borne coating composition when drying time of ½ hour is not crucially important," The examiner's

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analysis of Appellant's argument against the combination of Jin and Lokai is improper.

As stated above, Jin clearly states at paragraphs [0013] and [0036] that the advantageous effects and benefits of its invention are tied to the coating being "a nearly 100% solid system" with any remainder being solvent. Reformulating Jin's solvent-free coating as a water-based composition would be completely contrary to Jin's teachings.

The Examiner respectfully disagrees with this argument. It is well settled that that patents are relevant as prior art for all they contain. See *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998) (The court held that the prior art anticipated the claims even though it taught away from the claimed invention. "The fact that a modem with a single carrier data signal is shown to be less than optimal does not vitiate the fact that it is disclosed.").

NONPREFERRED EMBODIMENTS CONSTITUTE PRIOR ART. *Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments.* See MPEP 2123. Therefore, Jin does teach an aqueous coating compositions with longer time of curing.

e. Other reasons leading to a conclusion of nonobviousness :for the presently claimed subject matter

Claim 1 actually recites "irradiating the layers with UV radiation, thereby permitting both of the primer composition layer and the UV-curable paint to cure at the same time." Nealon does not at all mention UV radiation. The curing in Nealon is strictly thermal curing. See, for example, column 4, lines 45-54, of Nealon. Nealon teaches at column 4, lines 52-54, that the primer and top coat are co-cured and crosslinked at 54 °C

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for six hours. However, at column 4, lines 45-48, Nealon teaches that the balls are coated with the primer, dried, then cured for 10 minutes at 66 °C in a curing oven. Nowhere in Nealon is it disclosed or taught that the primer composition layer is not irradiated with UV radiation before the UV-curable paint is applied onto the layer. Also, Nealon's process presents that the primer and top coat are co-cured by heat, which does not suggest using UV radiation.

The Examiner respectfully disagrees with this argument. Crast cures top-coat **and** a primer by UV radiation. Nealon teaches that an aqueous primer comprising acrylate-polyurethane resin (i.e. a resin having UV curable acrylate groups as in a primer of Jin and Lokai) would improve adhesion of polyurethane top layer to ionomer golf ball cover if the polyurethane top layer were applied to **non-crosslinked**, *partially* cured primer (by heat), and then co-cured with the top coat layer. Therefore, it would have been obvious to one of ordinary skill in the art at to have applied a top coat layer in Crast to **non-crosslinked**, *partially* cured primer (by heat) and then irradiated with UV radiation. It is the Examiner's position that upon irradiation with UV radiation the top layer and **non-crosslinked**, *partially* cured primer would crosslink at the same time because Jin teaches that a resin having UV curable acrylate groups is UV-curable.

With respect to effects, Nealon is silent in teaching that the superior adhesion property carries the improvement of abrasion-resistance of golf balls. The effects and advantages of the presently claimed subject matter is completely unexpected from Nealon. In fact, in the process of Nealon, the primer composition layer has been almost cured progressively before the top coat is applied. So, the adhesion property of Nealon would be weak, in comparison to that achieved by the presently claimed subject matter.

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The argument is unconvincing. The primer composition layer would be even more progressively cured before the top coat is applied because the Appellants disclose that those advantageous effects may be achieved by heat treating the primer (that is substantially identical to that of Jin and Lokai) at a higher temperature of 70⁰C for longer time of 180 minutes (See specification, page 6, lines 14-18) versus Nealon treatment 66 ⁰C for 10 minutes.

However, the improvement of abrasion-resistance of golf balls in the cited prior art would be inherent because they are produced by a method substantially identical to that of claimed invention.

As to Comparative Example 1 or 2 of Appellants specification, Crast may be said to correspond to Comparative Example 1 or 2 of the present specification, because the primer composition of Crast does not have an aqueous resin having a UV-curable functional group in a molecule and a crosslinker, and also Crast does not suggest the effects that result from both of the primer composition and the UV-curable paint being cured at the same time. Therefore, Crast teaches away from the claimed method. Each of the other references of Jin, Lokai, Nealon is silent in teaching the feature of the claimed method. The cited secondary references do not disclose or suggest the claimed method satisfying all of the steps recited in Claim 1.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

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As was discussed above, Crast in combination with Jin and Lokai does have an aqueous resin having a UV-curable functional group in a molecule and a crosslinker. Combination of Crast, in combination with Jin and Lokai and Nealon do not correspond to Comparative Example 1 or 2 of the Appellants specification, and the combination all cited references does disclose or suggest the claimed method satisfying all of the steps recited in Claim 1.

3. A separate reason why Claim 4 is patentable over Crast in view of Jin, further in view of Lokai, and further in view of Nealon

The examiner has not identified a teaching or suggestion in the presently applied art of the presently claimed aqueous resin prepared by introducing water-soluble groups into base resins, wherein the water-soluble groups are selected from the group consisting of carboxyt groups, sulfonate groups, and amino groups.

B. Response to rejection of Claim 4 under 35 U.S.C. § 103

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Crast in view of Jin, further in view of Lokai, and further in view of Nealon, and further in view of U.S. Patent No. 5,089,376 ("Setthachayanon").

1. The error in the rejection

The error in the rejection is that the combination of Crast in view of Jin, further in view of Lokai, further in view of Nealon, and further in view of Setthachayanon does not establish a prima facie case of obviousness under 35 U.S.C. § 103 against the subject matter of Claim 4.

2. Why Claim 4 is patentable over Crast in view of Jin, further in view of Lokai, further in view of Nealon

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Claim 4 depends from Claim 1. For the reasons stated earlier herein, the method of Claim 1 is unobvious over Crast in view of Jin, further in view of Lokai, and further in view of Nealon. Setthaehayanon fails to cure the identified deficiencies of Crast in view of Jin, further in view of Lokai, further in view of Nealon with respect to the method recited in Claim 1. Therefore, at least by virtue of its dependence from Claim 1, Claim 4 is patentable over Crast in view of Jin, further in view of Lokai, further in view of Nealon, and further in view of Setthachayanon.

The argument is unconvincing because claim 1 is obvious over the cited prior art for the reasons discussed above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Elena Tsoy, Ph.D.
Primary Examiner
Art Unit 1762
September 5, 2007

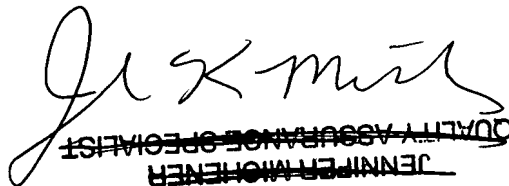
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